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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/507,069

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20987 7590 05/13/2009  
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EXAMINER

IP, SIKYIN

ART UNIT

PAPER NUMBER

1793

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/507,069	<b>Applicant(s)</b> PARK ET AL.	
	<b>Examiner</b> Sikyin Ip	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 2/11/09.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### Claim Rejections - 35 USC § 103

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3 and 5-17 are rejected under 35 U.S.C. § 103 as being unpatentable over USP 5298093 to Okamoto (PTO-1449) in view of SU 1148893, USP 4735771 to Corwin, or WO01057280.

Okamoto discloses the features including duplex stainless steel composition (col. 2, lines 42-55), PREW value (col. 2, lines 57-61), ferritic and austenitic phases volume ratio (col. 8, lines 5-7), and suppressing formation of sigma and khi phases (col. 2, lines 1-32). The difference between the reference(s) and the claims are as follows: Ba alloying element and solubility of MM, Y, Al, O, and/or S. However, SU 1148893 (abstract), Corwin (paragraph between col. 1-2, and col. 4, lines 19-28), or WO01057280 (paragraph bridging pages 3-4 and page 5, lines 10-30) discloses Ba

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among other oxide forming elements in the same field of endeavor or the analogous metallurgical art for improving machinability and oxide forming. Therefore, it would have been obvious to one having ordinary skill in the art of the cited references at the time the invention was made to provide Okamoto with Ba as taught by SU 1148893, Corwin, or WO01057280 because the set forth benefits and function entail the motivation of one skilled in the art to make a claimed compound, in the expectation that compounds similar in structure will have similar properties. It has been held that combining known ingredient having known functions, to provide a composition having the additive effect of each of the known functions is within realm of performance of ordinary skill artisan. In re Castner, 186 USPQ 213 (217). The use of conventional materials to perform their known functions in a conventional process is obvious. In re Raner, 134 USPQ 343 (CCPA 1962).

With respect to the solubility as recited in instant claims 5-7, that solubility is material property which would have been inherently possessed by the material of cited references. With respect to instant claim 13, that since the composition and duplex phases ratio of instant claimed are overlapped by alloy steel of Okamoto. The value as set forth in claim 13 would have been overlapped. Therefore, the burden is on the applicant to prove that the product of the prior art does not necessarily or inherently possess characteristics attributed to the claimed product.

In re Best, 195 USPQ, 430 and MPEP § 2112.01.

“Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best,

195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 195 USPQ 430, 433 (CCPA 1977)."

Claims 4-17 are rejected under 35 U.S.C. § 103 as being unpatentable over USP 5298093 to Okamoto (PTO-1449).

Okamoto discloses the features including duplex stainless steel composition (col. 2, lines 42-55), PREW value (col. 2, lines 57-61), ferritic and austenitic phases volume ratio (col. 8, lines 5-7) and suppressing formation of sigma and khi phases (col. 2, lines 1-32). The difference between the reference(s) and the claims are as follows: Okamoto does not disclose solubility of MM, Y, Al, O, and/or S. However, the solubility as recited in instant claims 5-7, that solubility is material property which would have been inherently possessed by the material of cited references. With respect to instant claim 13, that since the composition and duplex phases ratio of instant claimed are overlapped by alloy steel of Okamoto. The value as set forth in claim 13 would have been overlapped. Therefore, the burden is on the applicant to prove that the product of the prior art does not necessarily or inherently possess characteristics attributed to the claimed product.

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### ***Response to Arguments***

Applicant's arguments filed February 11, 2009 have been fully considered but they are not persuasive.

Also, the present invention defines a pitting resistance equivalent (PREW) by the following formula as set forth on page 14, line 21 of the present application:

$$\text{PREW} = \text{wt}\% \text{Cr} + 3.3(\text{wt}\% \text{Mo} + 0.5\text{wt}\% \text{W}) + 30\text{wt}\% \text{N}.$$

Okamoto on the other hand defines a pitting resistance equivalent (PREW) by the following formula as indicated in the Abstract thereof:

Applicants argue that "  $\text{PREW}^* = \text{wt}\% \text{Cr} + 3.3(\text{wt}\% \text{Mo} + 0.5\text{wt}\% \text{W}) + 16\text{wt}\% \text{N}.$  " But

rejected claims 1 and 4, for examples, merely require to satisfy said formula and applicants fail to show that claimed formula has not been satisfied by duplex stainless steel of Okamoto.

Applicants' argument in paragraph bridging pages 4-5 and first full paragraph in page 5 of instant remarks is noted. But, applicants fail to substantiate their position by pointing out that Okamoto teaches to add/include sigma and khi phases.

Applicants argue that Okamoto adds W instead of Ba (claim 1), and MM and/or Y (claim 4) as claimed to suppress sigma and khi phases. First, among the alkaline earth metals (Be, Mg, Ca, Sr, and Ba), Okamoto teaches to add Mg and Ca (col. 7, lines 35-45). Second, Ce (MM) is taught by Okamoto (paragraph bridging col. 7-8). Third, instant claim 4 and its dependant claims do not require Ba. Nonetheless, claimed steel

compositions have been overlapped by steel compositions of cited references and suppressing sigma and khi phases also has been taught by Okamoto.

Applicants' argument in page 6, first full paragraph of instant remarks is noted. But, it is clear that Okamoto teaches to avoid sigma and similar phases which is a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). The discovery of an optimum value of a variable in a known process or product is usually a matter of obviousness for one of ordinary skill in the art. Cf *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1368 (Fed. Cir. 2007).

Applicants' argument in page 6, second full paragraph and paragraph bridging pages 6-7 of instant remarks is noted. But instant claimed W content is much greater than Okamoto.

Applicants' request in page 7, first full paragraph of instant remarks is noted. Examiner reiterates the same response in page 7, first full paragraph of office action

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expression "sigma (O)" in page 1, line 16 and page 8, line 24 of instant specification with "sigma (o)" in claims 1 and 2 is confusing.

As is requested by applicants that the "Notice of Non-Compliant Amendment"

mailed on August 12, 2008 that " has been withdrawn. "

Applicants argue that Okamoto adds Ca, Mg, B, and REM for different reasons. But, applicants fail to show said added elements would not have the same effect as Ba.

Applicants' argument in pages 9-10 of instant remarks is noted. It is clear that applicants quoted said statement from Okamoto. But, instant claimed W content is much greater than Okamoto.

Regarding the further secondary relied upon references, Applicants respectfully submit that these prior art references do not provide any minimal hints or disclosures regarding problems and solutions of the intermetallic or secondary phases and

Applicants argue that “corrosion resistance of stainless steel.”

But, applicants’ arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

~~as in the examples.~~ According to the present invention, additionally added Ba, MM and/or Y can actively suppress the formation of intermetallic phases under the above

Applicants argue that “mentioned mechanism.”

” But,

alkaline earth metals such as Mg and Ca and MM such as Ce have been taught by Okamoto (Col. 7, lines 35-45 and col. 7, line 68 – col. 8, line 1). Furthermore, there is no factual evidence to show claimed Ba and MM and/or Y contents are critical and possessed unexpected results.

Applicants argue that WO 01/57280, SU 1148893, and Corwin add Ba for different purpose. The fact that applicants have recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Applicants’ argument with respect of WO 01/57280 of instant remarks is noted. But, WO 01/57280 does teach add Ba to ferritic and austenitic steels. Applicants’ argument in pages 11-12 of instant remarks is noted. However, unexpected results must be established by factual evidence. Mere argument or conclusory statements in the specification is not sufficient. *In re Geisler* (CA FC) 43 USPQ2d 1362



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(7/7/1997) and *Ex parte Gelles*, 22 USPQ2d, 1318. Unexpected results have not been shown by the examples set forth in instant remarks because which fail to compare the claimed subject matter with the closest prior art. In *re Burckel*, 201 USPQ 67, In *re Baxter Travenol Labs.*, 952 F.2d 388, 392, 21 USPQ2d 1281, 1285 (Fed. Cir. 1991), and In *re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984).

Comparison must be done under identical condition except for the novel features of the invention. In *re Brown*, 173 USPQ 685 and In *re Chapman*, 148 USPQ 711. The showing of unexpected results must be occurred over the entire claimed range. In *re Clemens*, 622 F.2d 1029, 206 USPQ 289, 296 (CCPA 1980). The scope of the showing must be commensurate with the scope of the claims. MPEP § 716.02(d), In *re Tiffin*, 448 F.2d 791, 792 (Fed. Cir. 1971), In *re Coleman*, 205 USPQ 1172, In *re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 778 (Fed. Cir. 1983), and In *re Greenfield*, 197 USPQ 227. Absent a showing of new and unexpected results, the mere optimizing sigma and khi phase for a desired result is within skill of ordinary artisan. In *re Aller, et al.*, 105 USPQ 233.

Applicants' argument in pages 12-13 of instant remarks is noted. But, elements recited in instant PREW formula are taught by Okamoto and the contents of said elements are overlapped. Applicants fail to show that any of their claimed elements is critical or steel composition of Okamoto would not satisfy recited PREW formula.

## Conclusion

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Applicant is reminded that when amendment and/or revision is required, applicant should therefore specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. § 1.121; 37 C.F.R. Part §41.37 (c)(1)(v); MPEP §714.02; and MPEP §2411.01(B).

#### Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Ip whose telephone number is (571) 272-1241. The examiner can normally be reached on Monday to Thursday from 5:30 A.M. to 4:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Roy V. King, can be reached on (571)-272-1244.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sikyin Ip/  
Primary Examiner, Art Unit 1793

May 10, 2009